Personality Architecture and the FFM in Organizational Psychology

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Abstract

Cervone, Shadel, Smith and Fiori (this issue) outline an approach to the study of self-regulation that is consistent with but extends research on self-regulation and motivation within organizational psychology. At the same time, their model represents a new perspective for the study of personality processes within organizations and one that conflicts with the existing personality research programs focused on the five factor model (FFM). We outline the points of differentiation between the two approaches and suggest strategies that we believe will allow personality researchers to build the personality architectures for the trait behaviours derived from the FFM. We also categorize the mediating mechanisms studied in organizational psychology in the KAPA model of Cervone et al. and highlight the need for related frameworks covering affective units and personal competencies in personality architecture.

The Knowledge and Appraisal Architecture framework (KAPA) presented by Cervone, Shadel, Smith and Fiori (this issue) has particular relevance for organizational psychology, and in ways that go beyond the applications suggested in their article. Cervone et al. set out to bring theoretical order to the study of self-regulation. However, their aim is even broader in that the personality architecture framework that they introduce is also a theory of personality that can explain consistency in behaviour and a theory of motivation that describes the psychological mechanisms that determine the choice of activities, regulation of effort and the persistence or abandonment of actions. A second aim of Cervone et al. (this issue) is to differentiate the dynamic within-person analyses of a personality architecture approach from the between-person categorizations of trait approaches, such as those of the five factor model (FFM), which has become one of the most commonly researched topics in organizational psychology over the past 20 years (Barrick, Mount & Judge, 2001; Barrick & Mount, 2005).

Several prominent personality researchers within organizational psychology have recently highlighted the need for greater understanding of the processes that link personal and situational factors to behaviour (e.g., Barrick, et al., 2001; Barrick & Mount, 2005; Hough & Oswald, 2005; Judge & Ilies, 2002; Judge, Heller & Mount, 2002, Murphy & Dzieweczynski, 2005). However, these suggestions, which primarily come down to adding process explanations to traits from the FFM and accounting for potential situational moderators in predictions of job performance from FFM traits, are not consistent with the personality architecture outlined by Cervone et al. (this issue). At the same time, organizational studies of motivation and self-regulation that study the same dynamic processes as outlined in the personality architecture of KAPA and other models (Wood, 2005), have typically been seen as separate topics from personality research, and from one another. This is despite the fact that there have been several models presented by organizational psychologists that have integrated personality, self-regulation, and motivation (e.g., Locke & Latham, 2004) as well as learning (e.g., Kanfer & Ackerman, 1989; Kluger & DeNisi, 1996). For example, Locke and Latham (2004) whose work has consistently integrated motivation and self-regulation in a single model have recently extended their model of work motivation to include personality variables, such as FFM traits, as determinants of goal choices.

Our comments address two questions of relevance to the application of the Cervone et al. approach to organizational psychology. First, can the FFM be linked to dynamic processes of the personality architecture approach? Cervone et al. argue that the two cannot be linked

but it is important to explore and test their arguments and to look for accommodating strategies before abandoning a major research thrust within a field. In order to address this question, we first outline what we believe are three key assumptions that Cervone et al. see as points of differentiation between the dynamic personality approach and their understanding of the trait-based FFM model. We then describe research strategies for FFM researchers that accommodate these assumptions. Second, in the interests of promoting greater integration of organizational research in the personality, motivation and self-regulation areas, we ask how do the dynamic processing variables that have been studied in organization psychology over the past 25 years fit into the six categories of the KAPA model? The KAPA may help to identify common mediating mechanisms and other forms of synergies, as well as identifying areas that are under researched across the personality, motivation and self-regulation areas within organizational psychology. Based on this categorization attempt we point to issues that need to be addressed for the application of KAPA in organizational psychology.

Differentiating Assumptions of Personality Architecture

The KAPA model, which was developed by Cervone (2004), builds on the cognitive-affective processing system model (CAPS, Mischel & Shoda, 1995; 1998) and the social cognitive theory of Bandura (1986; 1997). What all these within-person, dynamic personality architecture models share and what differentiates them from *their* descriptions of the between-person, static trait models such as the FFM are three general assumptions. These are assumptions about the appropriate *units of analysis* used to identify the sources of human consistency, the *generality* of responses to different situations and the *stability* of personality units over time.

Although there are many meanings of the word and many different approaches to the study of traits (Caprara & Cervone, 2001), Cervone et al. focus on those FFM trait theorists for whom the units of personality are the typical behaviours of an individual, which is presumed to represent an average across situations. In personality architecture approaches, the units of personality are the cognitive and affective reactions to situations and their organization both within and across different types of situations. The consistency observed in personality is to be discovered in the dynamic cognitive and affective reactions to different situations and not in summaries of typical behavioural responses to a wide range of situations. For example, a person who engages in a disagreement with a colleague in a work meeting may experience immediate arousal (negative affect), which leads them to question their social competence (self-efficacy) and to withdraw (task disengagement). The same person may have

a different set of cognitive and affective reactions to disagreements around the family dinner table, which leads to the second important assumption.

Within the personality architecture approach, the generality of responses across differing situations is not assumed but is be treated as a variable to be studied. The trait approach to measurement assumes that degree of agreement with scale items is indicative of the strength of typicality for the behaviours mentioned. It ignores variability in responses that may be due to differences in situations, such as success versus failure against a standard, public versus private performance outcomes and ambiguity versus clarity of expectations (Mischel, 1973). Social cognitive theorists who have developed the personality architecture approaches look for profiles of responses that describe both the typical responses within situations and variability in responses across different situations (Cervone et al., this issue; Mischel & Shoda, 1998).

The third differentiator between personality architecture and trait approaches is their respective assumptions about the stability of personality over time. For FFM researchers, the responses captured by measures such as the FFM scales represent stable personal factors that are hard wired and, at least for some traits, have biological and genetic determinants (McCrae, Jang, Livesley, Riemann, & Angleitner, 2001), even if all the specific determinants have not yet been identified. They view personality as a set of fixed entities. Social cognitive theorists like Cervone et al., take a more incremental view of personality and believe that the development of personality architecture is the product of ongoing interactions between an individual and the environment and that this process is also a variable to be studied.

The FFM and personality architecture in organizational psychology

Over the past twenty years, the study of personality in organizational psychology has been dominated by the global traits identified in the FFM, particularly by studies of the relationships between the FFM and various performance criteria (Barrick, et al., 2001; Barrick & Mount, 2005; Murphy & Dzieweczynski, 2005)[1]. The FFM has provided many contributions to the development of personality research in organization psychology. It has provided a focus for research and a common language for talking about personality in

[1] In common language and in organizational psychology research, FFM factors, such as extraversion, are referred to as traits. However, according to Eysenck's (1974) terminology such personality factors are not equal to traits but correspond to "super-factors" representing common variance of traits located at the sub-facet level (Paunonen, 1998), e.g., the traits of assertiveness and excitement seeking are sub-facets of extraversion.

organizations supported by well-validated sets of measures (Schneider, 1996). By providing a taxonomy of more or less independent personality factors the FFM has enabled the integration of seemingly heterogeneous findings regarding the role of personality in work settings (e.g., Borkenau, Egloff, Eid, Henning, Kersting, Neubauer & Spinath, 2005). Meta-analytic studies have shown that conscientiousness is a valid predictor of a range of performance criteria across a wide range of occupations; that emotional stability is also a generalizable, but less consistent, predictor of performance. Both traits have been described as "will do" components of work motivation (Barrick & Mount, 2005), whereas, intelligence, on the other hand, which is still the best predictor of work performance (Schmidt & Hunter, 1998), represents "can do" capabilities to perform. The other three traits (openness, agreeableness and extraversion) predict success in some occupations and for some performance criteria (Barrick et al, 2001; Borkenau et al., 2005). The extent of research on the topic has resulted in Barrick et al (2001) calling for a moratorium on meta analyses of studies linking FFM to performance and for more research focused on the dynamic psychological processes that link FFM traits to performance.

In recent years there have been several studies that link the cognitive affective processing units identified in social cognitive theory, such as those described by Cervone et al., with FFM traits, most commonly conscientiousness and emotional stability, which are the two most predictive traits in work settings (Barrick, et al, 2001; Barrick & Mount, 2005). This work has also reached the stage that meta-analyses have now established that conscientiousness, emotional stability and, somewhat less consistently, extraversion are significantly related to cognitive and affective processing units, such as self-set goals, self-efficacy, expectancies and job satisfaction (Judge & Ilies, 2002; Judge, et al., 2002), which in turn are related to behaviour and performance (Bandura, 1997; Locke & Latham, 1990). Further empirical support for relationships between personality traits, process variables and performance is provided by the multiple correlations between the FFM, as a set, and cognitive-affective processing variables on the one hand (R = .41, Judge, et. al, 2002; and R = .49, Judge & Ilies, 2002) and performance on the other (R = .30 for overall job performance and Rs in the .40ies for specific work performance criteria, Ones, Viswesvaran & Dilchert, 2005).

Superficially, it appears that the FFM researchers who call for research developing process models that link personality traits with performance (e.g., Barrick, et al., 2001; Judge & Ilies, 2002) have much in common with the Cervone et al. approach to processing dynamics of personality architecture. However, the superficial appearances are misleading

and there are several points of difference, including the three key assumptions that underpin the conceptualization and study of personality, mentioned earlier, plus the Cervone et al. position that traits developed to categorise people on typical behavioural tendencies cannot be used to infer the existence of personal causal factors that determine the behaviour.

According to Cervone et al., attempts to marry the between person (inter-personal) global trait summaries provided by the FFM taxonomy to the within-person (intra-personal) cognitive and affective processing dynamics of personality architecture are misguided. Drawing on the arguments of Borsboom, Mellenbergh, and van Heerden (2003) they argue, "… that between-person methods and constructs cannot be assumed to substitute for an analysis of psychological structure at the level of the individual case" (p 14). Of course substitution is quite different from integration but the authors also criticise the attempts of Locke and Latham (2004) to provide an "integrated model of work motivation" by positing that the effects of FFM personality traits on behaviour are mediated through their effects on intra-personal cognitive and affective processes, such as self-efficacy assessments and goal choice. Other organizational psychologists have developed similar models with different sets of mediating mechanisms (e.g., Barrick & Mount, 2005; for an overview see Ones et al, 2005) for the established relationships between FFM traits and performance, e.g., types of motivations, such as striving for social acceptance, status/power and meaning/purpose (Hogan, 2005), striving for status, communion and accomplishment (Barrick et al., 2001), and similarly "getting ahead", "getting along", "getting things done" (Hogan & Shelton, 1998, cited in Barrick et al., 2001).

Models linking FFM traits to dynamic processes seem to offer the prospect of cumulative knowledge leading to significant practical implications, which is a major aim of applied psychology research, and therefore should not be dismissed without careful consideration of the arguments against it. At the same time, unless adequately dealt with, Cervone et al.'s criticisms of attempts to use FFM traits as explanatory constructs suggest that any knowledge accumulated from researching these models will be built on shifting sands.

The arguments by Cervone et al. (this issue) against attaching dynamic processes to FFM traits are based on three main points relating to the differentiating assumptions outlined earlier. (1) The focus on behavioural patterns as the *unit of analysis* means that FFM traits lack efficacy as causal determinants of cognitive and affective processes, because it requires the inference of some representative personal factor that corresponds to the behaviours observed. (2) The *generality* assumption does not provide accurate descriptions of the variations in behaviour across situations. (3) The *stability* assumption eschews the study of

developmental processes and variations in behaviour within situations over time due to dynamic interactions between personal factors and environments. We address each of these points in turn and suggest research strategies for organizational psychologists based on these discussions.

Within a personality architecture approach, the assumptions of *generality* and *stability* of personal dispositions are relaxed and become variables for investigation. One of the main insights to emerge from the work of Mischel and Shoda (1995; 1998) was that consistency in behaviour is evident in the profiles of individual responses across different situations. Unlike the implicit averaging approach in FFM trait measures, the study of profiles captures the consistency both within particular types of situations and the variability between different types of situations, as illustrated in the earlier example of responses to disagreements at work and at home. Presumably, organizational research on FFM traits could also address how generalizable the behaviour patterns associated with each trait are across work and non-work situations and whether some would have a flat behaviour-situation profile indicating that the same behaviour is repeated across situations, while other behaviours may be sensitive to context and display a more variable profile. For example, emotional stability and extraversion, which do appear to have clearer biological determinants than some of the other traits (emotional stability, e.g., Munafo, Clark, Moore, Payne, Walton & Flint, 2003; extraversion, e.g., Canli, Sivers, Whitfield, Gotlib & Gabrieli, 2002; Depue & Collins, 1999), may prove to be less sensitive to situation factors and to have a flatter profile across a range of different social situations then, say, conscientiousness.

Similarly, the question of stability versus development over time is a question that could be addressed if organizational researchers were willing to let go of the idea that the FFM traits are fixed entities in favour of the social cognitive view that dispositions are not only sensitive to situations but develop and change over time through reciprocal interactions with contexts. The malleability of certain FFM traits within different work and non-work contexts could be framed as a longitudinal research questions. The fact that different traits may be associated with genes and have inheritability does not make this assumption untenable. Intelligence has genetic determinants but researchers in that field would not suggest that crystallized intelligence and other cognitive capabilities do not develop differentially over the life spans of people with similar levels of fluid intelligence or working memory capacity (e.g., Mackintosh, 1998; Ackerman, 1996).

Presumably, the responses associated with traits such as extraversion that have been more strongly linked to biological determinants (e.g., Canli, et al, 2002; Depue & Collins,

1999) may also prove to be more fixed than others, such as openness to experience, which may be more easily influenced by features of organizational contexts in which a person works for extended periods. Examples of contextual factors that could shape openness over time are curiosity norms, tolerance of errors and the value of learning. If a person is socialized into an organizational context with strong norms and incentives for particular types of behaviours and works in that context for an extended period, then we can reasonably expect their typical behaviours to change as a result of their interactions with the environment (Schneider, 1996).

Some of the observed behavioural patterns within FFM traits may even be malleable through training. For example, the sub factor of deliberation in the conscientiousness trait is measured by a set of items such as "I plan ahead carefully when I go on a trip"; "I always consider the consequences before I take action " and "I think things through before coming to a decision" that could be used as criteria in the evaluations of time management and project management training courses. If these popular training courses make any impact on the behaviours they target, they could easily lead to changes in the observed pattern of behaviours that are currently labelled conscientiousness. The extensive support for the effects produced by manipulations of goal setting and associated goal striving activities, such as strategies and planning (Bandura, 1997; Locke & Latham, 1990), is evidence of the malleability of the behaviours that are rated on the conscientiousness scales of the NEO-PI-R (Costa & McCrae, 1992).

The major challenge for any attempts to link the FFM traits with the processing dynamics of personality architecture is Cervone et als' argument that observed patterns of behaviour cannot be used to infer some equivalent internal property in the person as the cause of the observed behaviour. As an example, they argue that, just as a sporty car does not have a 'sporty' inside the engine that produces sportiness, there are no equivalent structural factors inside humans that relate to each of the traits in the FFM[2]. While we agree with Cervone et al. that descriptive categories like the FFM traits lack causal efficacy as explanatory variables, there are three aspects of their arguments that we would like to explore further and then proceed to some strategies for FFM researchers in organisational psychology. Specifically: (i) We question whether measures of FFM only tap observed behaviours. Also, the assumption that the FFM traits are based on individual differences does not preclude the possibility that:

[2] Authors of five factor models, however, take different views on causality. Whereas Costa and McCrae (1996) tend to conceptualise their five factors as explanatory entities, as described by Cervone et al. (in this issue) and other social cognitive theorists, personality researchers, such as Goldberg (Saucier & Goldberg, 1996) and Hogan (1996), stress the descriptive valence of FFMs and present them mainly as taxonomies of personality traits.

(ii) There are some related internal personal factors, such as beliefs, that can be linked to the observed behaviours for FFM traits within individuals through their impacts on cognitive and affective processes; or (iii) That the differences in observed behaviour patterns based on the FFM may be the product of some systematic differences in cognitive-affective processing of situations, which once identified can be assessed through tests of change in the target behaviours. This is similar to the discussion of processing dynamics described by Cervone et al. for smokers and people with Antisocial Personality Disorder and Anxiety Disorders. The initial categorizations of people with these conditions are based on observed behaviours, such as smoking and non-smoking. The study of the cognitive and affective processes that influence changes in that behaviour, such as cessation of (or changes in) smoking behaviour, followed from the original behavioural observations that lead to the categorizations of individuals as either a smoker or non-smoker. Similarly, individual categorizations based on FFM traits may be used to identify behaviours that can be targeted for change based on greater understanding of the personality architecture that predicts those behaviours.

Contrary to the Cervone et al. position that measures of the FFM only assess behaviours, we believe that they also include assessments of cognitive and affective reactions. Items such as “I often feel tense and jittery” and “When I am under a great deal of stress, sometimes I feel I am going to pieces” assess affective reactions, while items such as “I have a clear set of goals and work towards them in an orderly fashion”, assess personal cognitive factors. Therefore, while we accept the criticism that FFM traits are descriptive constructs developed to describe between person differences and not within-person explanatory constructs, we do not accept the Cervone et al. description of the content of those constructs as only referring to behavioural responses. This latter point is relevant for attempts to identify explanatory personal factors that drive FFM trait types of individual responses to situations, as outlined below.

If we are to understand the dispositional bases for differences in the profiles of processing dynamics that lead to behavioural responses of individuals that are characteristic of FFM traits, how should we conceptualise those dispositions so that they fit within the personality architecture of Cervone et al.? What personal factors can predict individual reactions to different situations? One answer lies in the belief-based conceptualisations of dispositions, such as that outlined by Dweck (1999) in her conceptions of personal attributes as either entity beliefs or incremental beliefs, which has been applied in organizational psychology research (e.g., Wood & Bandura, 1989; Tabernero & Wood, 1999). Other examples of belief-based conceptions of personality that have been applied in organization

psychology are the locus of control expectancies (Rotter, 1954; Phares, 1973) and, from the management literature, Theory X and Theory Y beliefs (McGregor, 1960). Another example is social identity and personal identity (e.g., Brunstein, 2000; Brunstein & Gollwitzer, 1996; Wicklund & Gollwitzer, 1982).

Prior beliefs, such as locus of control, implicit theories and identity, which are categorised in the knowledge and appraisal sections of KAPA (Table 1), can vary in their generality across situations and can be changed through developmental experiences (Rotter, 1975; Dweck, 1999). For example the original I-E scale provided global assessments of generalized expectancies, which later factorial studies have disaggregated into measures of beliefs regarding specific domains such as "personal control", "interpersonal control", and "socio-political control" as in Spheres of Control scale (Paulhus, & Van Selst, 1990). Others have adapted the scale to provide more domain specific measures such as the "Health Locus of Control" (Wallston, Wallston, & Devellis, 1978), Marital Locus of Control (Miller, Lefcourt, & Ware, 1983), Work Locus of Control (Spector, 1988). After 20 years of research and over 600 published studies on locus of control, mostly using student samples, Rotter noted that the mean score on the I-E scale for college students had "… risen from a score of 8 (SD=approximately 4.0) to somewhere between 10 and 12, depending on the sample" (1975; p. 62). Clearly, general expectancies about the world of college students had changed between the 1950s and the early 1970s.

For many organizational psychologists, these belief based conceptualisations and the related measures lack the generalizability and criterion related validity to qualify as individual differences or dispositions (Hogan, 2005). On the other hand, research in FFM has shown that there are stable relationships between personality traits and relevant organisational variables, that have the potential to predict work behaviour, in some areas even above and beyond intelligence, e.g., leadership (Judge, Colbert, & Ilies, 2004). Therefore, we need to consider how the personality architecture approach can be used to extend research on traits with validated measures, such as the FFM, without assigning the trait descriptors an explanatory status. We suggest two strategies and provide examples of how research might proceed. Both strategies are based on the premise that the FFM measures, particularly at the sub factor level, tap relative consistencies in an individual's cognitive and affective reactions and behaviours across a range of situations.

One research strategy is to consider what types of *personal beliefs* might lead to the types of behaviours assessed by the sub factors in the FFM in different situations and then to test whether differences in those beliefs are systematically related to differences in the

observed response patterns on the FFM measures. In fact, items in the NEO-PI-R (Costa, & McCrae, 1992) do already assess a range of beliefs (knowledge structures) including beliefs about the self, how peers perceive them, and about aspects in the world. For instance, examples of items tapping self-related beliefs are: "I am a cheerful, high-spirited person" and "I am a very competent person", items assessing beliefs about how one might be perceived by others include: "I am known as hot-blooded and quick-tempered", and "Some people think I am selfish and egoistical", and items that assess a person's beliefs about the world include: "I believe that most people are basically well-intentioned", and "I believe letting students hear controversial speakers can only confuse and mislead them".

In sum, a closer look into the item-pool basically suggests that besides self-reported behavioural reactions the NEO-PI-R does assess typical affective and cognitive reactions to a wide range of situations. Measuring typicality across different situations allows inter-individual comparisons. However, a stronger focus on dominant personal beliefs (knowledge structures and appraisals), would allow adding explanatory factors to the description of personality. The ideographic approach to assessment recommended by Cervone et al. is promising in this respect, as illustrated in the work of Fleeson (2001).

A second research strategy would be to identify different personality types based on the FFM classifications and then to investigate the cognitive-affective processing reactions of the different types to situations that might be expected to lead to different responses. The identification of the personality architecture of smokers, which was then used to devise and test strategies for cessation of smoking, mentioned earlier, is an example of this type of research strategy. For personality researchers in organizational psychology, an interesting research question might be "what is the personality architecture or cognitive affective processing that leads to differences in the observed behaviours of people with high conscientiousness and high emotional stability at work and those with low conscientiousness and low emotional stability, as assessed on FFM trait measures?" This question and others like it based on the FFM could be studied in a range of work settings using the ideographic methods described by Cervone et al. Once established, knowledge of the specific cognitive and affective units and their organization in the personality architecture of the different types could be used to develop and test interventions for increasing conscientiousness and emotional stability in work settings where these behavioural traits are related to performance.

KAPA and Current Research in Organizational Psychology

New typologies like the KAPA can suggest new research questions but their usefulness to the field must also be judged on their usefulness for organizing existing knowledge and in identifying gaps and useful distinctions that are not currently being considered. Thus, we wanted to provide a summary of the cognitive and affective processing variables that are being studied as predictors of outcome variables in organizational psychology, such as work performance and whether the KAPA is a useful taxonomy for categorizing those variables.

Table 1 shows a summary of the most common mediators studied in organizational psychology research over the past 25 years (Wood, Goodman, Cook, & Beckmann, 2006) categorised in the KAPA framework. Several points regarding KAPA's coverage of the research in organizational psychology are worthy of note.

First is the fact that the personality architecture processes described by Cervone et al. are studied as explanatory variables across a range of topics, mainly in self-regulation and motivational studies. A relatively small proportion of the studies (approx 10%) reporting research on cognitive and affective processing variables between person and situation factors and behaviour or performance use the word personality to describe the research. The exceptions tend to be those studies where traits, mainly from the FFM, are the personal factors being studied. Second, the appraisal processes in the KAPA are studied more often than the knowledge variables and, hence, seem to be considered as more promising explanatory concepts by organizational psychologists. Third, a range of studies have focused on affective variables that might have an impact on performance and other outcomes, such as negative affect and mood, emotional exhaustion, regret, and anxiety. The KAPA model presented by Cervone provides categorization of the knowledge structures and appraisal processes that comprise the cognitive units of the personality architecture but not affective structures and affective experiences that also shape the decisions and actions of humans, as noted by Cervone (2004). The reciprocal nature of cognitive and affective phases in human processing (Forgas, 1995) will mean that any purely cognitive classificatory scheme such as KAPA may bias research and lead to affective responses being consigned to the category of consequences, and pre-cognitive affect, which may be a key trigger or organizing reaction for CAPS, may be less likely to be the focus of research. Interestingly, in organizational psychology research more attention has been spent on the study of affect with negative valence (e.g., anxiety). However, we think future research should focus more on positive affects and emotions, such as flow, happiness, joy and pleasure (Csikszentmihalyi, 1990, Seligman, & Csikszentmihalyi, 2000) and its impact on behaviour in a work setting. Fourth,

following on from the third point, some of the dynamic units studied in organizational psychology are difficult to place in the KAPA because they are a product of both cognitive and affective processing is involved, such as satisfaction and intrinsic motivation or flow. Finally, a class of variables often studied but not explicitly represented in the KAPA model is related to personal capacities and competencies, such as learning and adjustment, including preferred task strategies, and feedback seeking.

With the KAPA model Cervone et al. propose a potentially useful framework for categorizing and understanding the different types of mediation mechanisms studied in organizational psychology. For the balanced accumulation of knowledge in the field of organizational psychology, however, related frameworks are needed for affective units and personal competencies.

Conclusions

In the last two decades the FFM has become the most influential model of personality in organizational psychology research and we see little to suggest that the current trend toward the study of processing dynamics associated with FFM traits will stop. Meta-analyses have suggested that measures of the FFM are valid predictors of relevant outcome variables, such as work performance and satisfaction, and therefore do offer information that is valuable for organisational psychologists. Understanding the personality architectures that underpin the behaviours captured by FFM traits would also add value to the field. However, the current research strategy of using the summary trait based measures as personal factors to predict cognitive affective processing lacks causal efficacy, as Cervone et al. point out.

Our concern is that the entrenched perspectives of the FFM approach in organizational psychology may lead to an outright rejection of the personality architecture approach proposed by Cervone et al., or the two schools may simply ignore each other. Our major aim is this commentary has been to unpack the arguments of Cervone et al. and to suggest some strategies for FFM researchers to study processing dynamics and development of trait behaviours in ways that are consistent with the personality architecture approach.

The study of mediating mechanisms has been another major focus in organizational psychology over the past 25 years (Wood, et al., 2006) but these have been studied in the separate research silos of motivation, self-regulation and personality. The KAPA model provides a taxonomy for integrating our knowledge of cognitive mechanisms across these areas and we believe that similar frameworks for affective units and personal competencies would also be helpful. Without the integration made possible by theoretical frameworks like

KAPA, organizational psychologists will continue to pursue similar questions under different labels and deny themselves the opportunity to learn from one another and to use our limited resources to develop the interventions for improving organizations, which is why we are "applied" psychologists.

References

Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence*, 22, 227-257.

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Barrick, M. R., & Mount, M. K. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance, 18*, 359-372.

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the millennium: What do we know and where do we go next? *International Journal of Selection and Assessment, 9*, 9-29.

Borkenau, P., Egloff, B., Eid, M., Henning, J., Kersting, M., Neubauer, A. C., & Spinath, F. M. (2005). Persönlichkeitspsychologie: Stand und Perspektiven (Personality psychology: Current state and future prospects). *Psychologische Rundschau, 56*, 271-290.

Borsboom, D., Mellenbergh, G. J., & van Heerden, J. (2003). The theoretical status of latent variables. *Psychological Review, 110*, 203-219.

Brunstein, J. C. (2000). Motivation and performance following failure: The effortful pursuit of self-defining goals. *Applied Psychology: An International Review, 49*, 340-356.

Brunstein, J. C., & Gollwitzer, P. M. (1996). Effects of failure on subsequent performance: The importance of self-defining goals. *Journal of Personality and Social Psychology, 70*, 395-407.

Canli, T., Sivers, H., Whitfield, S. L., Gotlib, I. H., & Gabrieli, J. D. E. (2002). Amygdala response to happy faces as a function of extraversion. *Science, 296*, 2191.

Caprara, G. V., & Cervone, D. (2000). *Personality: Determinants, dynamics, and potentials*. New York, NY: Cambridge University Press.

Cervone, D. (2004). The architecture of personality. *Psychological Review, 111*, 183-204.

Costa, P. T., & McCrae, R. R. Jr. (1992). *Revised NEO Personality Inventory and NEO Five-Factor Inventory: Professional Manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York, NY: Harper & Row.

Depue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioural and Brain Sciences, 22*, 491-517.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.

Eysenck, H. J. (1947). *Dimensions of personality*. London: Routledge & Kegan Paul.

Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology, 80*, 1011-1027.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39-66.

Saucier, G., & Goldberg, L. R. (1996). The language of personality: Lexical perspectives on the five factor model. In J. S. Wiggins (Ed.), *The five factor model of personality: Theoretical perspectives* (pp. 21-50). New York, NY: Guilford.

Hogan, R. (1996). A socioanalytic perspective on the five-factor model. In J. S. Wiggins (Ed.), *The five factor model of personality: Theoretical perspectives* (pp. 163-179). New York, NY: Guilford.

Hogan, R. (2005). In defence of personality measurement: New wine for old whiners. *Human Performance, 18*, 331-341.

Hogan, R., & Shelton, D. (1998). A socio-analytic perspective on job performance. *Human Performance, 11*, 129-144.

Hough, L. M., & Oswald, F. L. (2005). They're right, well ... mostly right: Research evidence and an agenda to rescue personality testing from 1960s insights. *Human Performance, 18*, 373-387.

Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89*, 542-552.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-Factor Model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*, 530-541.

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology, 87*, 797-807.

Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74*, 657-690.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*, 254-284.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A., & Latham, G. P. (2004). Recommendations for developing a theory of motivaiton for the 21st century. *Academy of Management Review, 29*, 388-403.

Mackintosh, N. J. (1998). *IQ and Human Intelligence*. Oxford: Oxford University Press.

McCrae, R. R., & Costa, P. T. Jr. (1996). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. S. Wiggins (Ed.), *The five factor model of personality: Theoretical perspectives* (pp. 51-87). New York, NY: Guilford.

McCrae, R. R., Jang, K. L., Livesley, W. J., Riemann, R., & Angleitner, A. (2001). Sources of structure: Genetic, environmental, and artifactual influences on the covariation of personality traits. *Journal of Personality, 69*, 511-535.

McGregor, D. (1960). *Human side of the enterprise*. Hill, NY: McGrau.

Miller, P. C., Lefcourt, H. M., & Ware, E. E. (1983). The construction and development of the Miller Marital Locus of Control Scale. *Canadian Journal of Behavioral Science, 15*, 266–279.

Mischel, W. (1973). Towards a cognitive social learning reconceptualization of personality. *Psychological Review, 80*, 252-283.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review, 102*, 246-268.

Mischel, W., & Shoda, Y. (1998). Reconciling processing dynamics and personality dispositions. *Annual Review of Psychology, 49*, 229-258.

Munafo, M. R., Clark, T. G., Moore, L. R., Payne, E., Walton, R., & Flint, J. (2003). Genetic polymorphism and personality in healthy adults: A systematic review and meta-analysis. *Molecular Psychiatry, 8*, 471-484.

Murphy, K. R., & Dzieweczynski, J. L. (2005). Why don't measures of bread dimensions of personality perform better as predictors of job performance? *Human Performance, 18*, 343-357.

Ones, D. S., Viswesvaran, C., & Dilchert, S. (2005). Personality at work: Raising awareness and correcting misconceptions. *Human Performance, 18*, 389-404.

Paulhus, D. L., & Van Selst, M. (1990). The Spheres of Control scale: Ten years of research. *Personality and Individual Differences, 11*, 1029-1036.

Paunonen, S. V. (1998). Hierarchical organization of personality and prediction of behavior. *Journal of Personality and Social Psychology, 74*, 538-556.

Phares, E. J. (1973). Locus of control: A personality determinant of behaviour. Morristown, NJ: General Learning Press.

Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice Hall.

Rotter, J. B. (1975). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *Journal of Consulting and Clinical Psychology, 43*, 56-67.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of research findings. *Psychological Bulletin, 124*, 262-274.

Schneider, B. (1996). Whither goest personality at work? Overview of the special issue on "Work and personality". *Applied Psychology: An International Review, 45*, 289-296.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Spector, P. E. (1988). Development of the work locus of control scale. *Journal of Occupational Psychology, 61*, 335-340.

Tabernero, C., & Wood, R. E. (1999). Implicit Theories versus the Social Construal of Ability in Self-Regulation and Performance on a complex task. *Organizational Behavior and Human Decision Processes, 78*, 104-127.

Wallston, K. A., Wallston, B. S., & Devellis, R. (1978). Development of the multidimensional health locus of control scales. *Health Education Monographs, 6*, 160-170.

Wicklund, R. A., & Gollwitzer, P. M. (1982). *Symbolic self-completion*. Hillsdale, NJ: Erlbaum.

Wood, R. E. (2005). New Frontiers for self-regulation research in IO psychology. *Applied Psychology: An International Review, 54*, 192-198.

Wood, R., E., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14*, 361-384.

Wood, R. E., Goodman, J. S., Cook, A., & Beckmann, N. (submitted). Mediation Testing in Management Research: A Review and Proposals. *Organizational Research Methods*.

Table 1: KAPA Taxonomy With In the Field of OP Often Studied Mediator Variables From 1980 To 2005

	Beliefs (today's world)	*Evaluative standards*	*Aims/goals* (future)
Appraisal processes (dynamic evaluations of the relation between oneself and the world*)*	Attributions for job loss, responsibility judgments & justifications) Social perceptions (e.g., evaluations of others, identification processes, trust, interpersonal attraction, perceived similarity) Job & Work Reactions (e.g., job satisfaction) Instrumentality perceptions Control (locus of control, control desired vs. possessed, changes in control, versus risk/risk propensity) Self-efficacy (e.g., computer SE, training SE, collective efficacy) Confidence, (e.g., in decision making, empowerment) Support perceptions (organizational, group/team, leader etc.) Motivation (task, intrinsic motivation, commitment, competitiveness, willingness, job/task importance, initiative) Performance/job/organization evaluations (specific outcome evaluations) Climate perceptions (team, organization)	Justice, & fairness perceptions (organizational, group/team, leader etc., e.g., fair-pay perceptions) Perceived job stress (e.g., withdrawal cognitions, psychological distress & psychological strains, role/job overload, life events) Perceived conflicts (e.g., role, task, family-work, intra-group, relationship, psychological contract violations) Costs vs. benefits calculations (personal profit, subjective fit)	Goal setting (e.g., self-set-salary goals) Goal commitment Goal progress Planning (career planning, task panning, perceptions of developmental needs) Expectancies (outcome, performance, self-expectancies) Goal driven motivations Intentions (turnover intentions)
Knowledge structures (mental representations of oneself, others and the world)	Self-concepts (e.g., perceptions of ability & performance) Role definitions (e.g., OCB) Domain-specific knowledge, expertise (based on experience & education) Knowledge & perceptions about the job & organization (job mobility, job security, job autonomy, job authority, job alternatives, job complexity, organizational structure & social network variables)	Communication/cooperation norms & standards (including perceived co-workers permissiveness, subordinates professional orientation) Performance norms & standards (standards of desirable performance) Anticipated rewards Social comparison standards Ethics & morality (social-sexual behaviour & sexual harassment, ethicality, integrity)	Personal goals Values